

Detailed Action

This Office Action is in response to the Applicant's reply received 4/14/11. Claims 1-57 are pending. Claims 11, 12, 18-55, are withdrawn. Claims 1-10, 13-17, 56 and 57 are considered on the merits.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/5/09 has been entered.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-10, 56 and 57 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Ramirez et al. (U.S. Patent # 5632996) in view of Self (U.S. Patent # 4917816).

These claims are drawn to a composition comprising particles of benzoyl peroxide (**BP**) or a salt thereof that is present in an amount from about 99.5% to about 0.001% by weight, wherein the particles have an average size of less than 2000 nm. A

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surface stabilizer is adsorbed to the surface of the BP and is present in an amount of about 0.5% to 99.999% by weight. These particles can be in a crystalline phase, amorphous phase, a semi-crystalline phase, or a semi-amorphous phase. Claim 3 further limits claim 1 by requiring the BP particles be less than 1900 nm in size. Claim 4 limits the formulation of the composition in claim 1 to creams. The composition further comprises pharmaceutically acceptable excipients, carriers, or a combination thereof.

The surface stabilizer is selected from the group of non-ionic surface stabilizers. Claim 9 further limits that the composition of claim 1 comprises at least two surface stabilizers. Claim 10 provides a list to limit the surface stabilizers, some of which are ionic and non-ionic.

Ramirez et al. teach a composition of BP that ranges from 70% to 5% by weight and a surface stabilizer of alkylbenzoate (**AB**) that ranges in the composition from 95% to 30% by weight (col 3, lines 50-65, and col 2, lines 59-68). These BP compositions can be formulated into a lotion, cream or gel (lines 29-31) or a solid dosage form such as a soap for use on the skin. The cream compositions contain AB and other non-ionic surface stabilizers such as colloidal silicon dioxide (col 4, line 40). The cream also contains pharmaceutically acceptable excipients and carriers such as glycolic acid and petrolatum (petroleum jelly).

While Ramirez et al. does not explicitly state that the AB is adsorbed on the surface of the BP, one of ordinary skill in the art would understand this is inherently occurring based on the description of the composition resulting when AB is mixed with BP. Ramirez et al. teach that when the AB is added to the BP in solution and

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“totally replaces all the water from the composition thereby providing a fine textured, substantially anhydrous benzoyl peroxide paste composition”

(Ramirez, col 3, lines 20-27)

Ramirez et al. teach that the AB can then be dissolved from the BP by simply using an alcohol solvent (Ramirez, col 3, lines 27-30). Ramirez et al. teach that the BP crystals resulting from this alcohol washing did "not go through any chemical structural changes" (Ramirez, col 3, lines 40-41) and that the BP crystals remained intact even after mixing with the AB (Ramirez, col 3, lines 47-50). Therefore one of ordinary skill in the art would recognize that since the AB is not performing any "chemical structural changes" to the BP crystals, the change in texture of the BP/AB composition is caused by the AB replacing the adsorbed water on the surface of the BP crystals. This is further strengthened since the AB was simply washed off the surface of the BP with alcohol, indicating that the AB is adsorbed on the surface and not embedded or mixed with the BP crystals.

Furthermore, Ramirez et al. teach the same active steps to make their composition as taught in Examples 1-3 in the Specification of the Applicant. Like the Applicant, Ramirez et al. mixes or mills the surface stabilizer with the BP to form their composition (Ramirez, col 4, lines 1-10 and lines 30-60). Therefore the surface stabilizer is inherently adsorbed to the BP since the same active steps lead to the same compositions with the same physical properties in the absence of evidence to the contrary.

Ramirez et al. also teach that their amorphous powder of BP is an art-defined equivalent to BP crystals in a cosmetic composition (col 3, line 28-46). Therefore it would be obvious for one of ordinary skill in the art to substitute one crystal phase of BP for another in a cosmetic formulation (M.P.E.P. § 2144.06).

Ramirez et al. addresses particle size as important in the formulation by teaching “It would be desirable to provide a BP compositions...which have a smooth texture appropriate for cosmetic products” (col 1, lines 53-59) and BP “crystalline powder is gritty” and discusses the importance to “prepare a paste having benzoyl peroxide crystals that are sufficiently fine to be of acceptable texture for preparing products for topical use” (col 1, lines 30-40). Therefore in light of the teachings of Ramirez et al. one of ordinary skill in the art would recognize the importance of crystal size in the texture of a BP composition, and that finer crystals are required to reduce the grittiness of the composition to make it acceptable for topical use. Therefore, one of ordinary skill in the art would be motivated to use small BP crystals from the teachings. However, Ramirez et al. does not teach the specific particle size of the BP in their composition as limited in the claims. However this would be obvious in view of Self et al.

Self et al. teaches small BP crystals of “from about 2 microns” (Self, 7, lines 21-25; col 9, lines 11-14) as “active ingredients in dermicial and other pharmaceutical compositions” (Self, col 3, lines 62-63). “About 2 microns” obviously meets the limitations of about 1900 or 2000 nm since “the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to

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have the same properties" (M.P.E.P 2144.05 I) since they are used for the same purpose of skin care.

Therefore one of ordinary skill in the art would be motivated by both Ramirez et al. to use the BP crystals of Self et al. since Ramirez et al. desires the use of fine crystals in their skin compositions and Self et al. teach that their BP crystals are useful in dermicial (skin) compositions. Furthermore, since both teach BP crystals one of ordinary skill in the art would recognize that it would be obvious to substitute the crystals of Self et al. in the composition of Ramirez et al. with reasonable expectation of success since both BP crystals have the same chemical composition and are both used in skin compositions (KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398 (2007), Pg 14) .

Therefore the references listed above renders obvious claims 1-10 and 56 and 57.

Response to Applicant Arguments

The Applicant argues that AB is not a surface stabilizer in the composition of Ramirez et al. but rather a solvent. This argument has been considered and found not persuasive. the AB/BP paste of Ramirez et al. clearly is not a solution since it is defined as having a "fine texture" and "soft" (Ramirez, col 3, lines 25-28) adjectives not applied to solutions but solid materials.

The Applicant appears to argue that AB cannot be a surface stabilizer for the BP crystals and is not adsorbed to the surface of the BP crystals. This argument has been considered and found not persuasive. As described above in the paragraph bridging pages 3 and 4, it is clear that the AB is adsorbed on the surface of the BP crystals since

it causes significant changes in the surface properties (i.e. texture) of the BP crystals when added and when removed with alcohol leaves chemically unchanged BP crystals.

As for the Applicant's assertion that AB and other surface stabilizers such as colloidal silicon dioxide are not adsorb to the surface of the BP, this argument has been considered and found not persuasive. Considering Examples 1-3 in the Applicant's specification, the BP crystals and various surface stabilizers were made by simply mixing or milling an aqueous dispersion of the ingredients. Ramirez et al. teach the same active steps by mixing or milling the BP with the Applicant's own surface stabilizers of colloidal silica and AB (Ramirez, col 4, lines 4-10 and 30-60). Therefore it is inherent that Ramirez et al. forms BP crystals with adsorbed surface stabilizers since they teach the same active steps as the Applicant. The logic being that the same steps create the same composition.

Therefore the rejection over Ramirez et al. (U.S. Patent # 5632996) in view of Self (U.S. Patent # 4917816) for claims 1-10, 56 and 57 remain.

Claims 14-16 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Ramirez et al. (U.S. Patent # 5632996) and Self (U.S. Patent # 4917816) as applied to claim 1-10, 56 and 57 above, and further in view of Kanios et al. (U.S. Patent # 5719197, 1998).

Claims 1-10 and new claims 56 and 57 are summarized above. Claims 14-16 further limit the composition of claim 1 by requiring the composition to be a bioadhesive,

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additionally comprise one or more non-BP active agents selected from the group of nutraceuticals, retinoic acid, antibiotics, sulfur and salicylic acid.

As mentioned above Ramirez et al. and Self et al. render obvious claims 1-10 above by teaching a BP composition with a several surface stabilizers that can be formulated into a cream for cleansing the skin (col 1, lines 10-13) which includes acne treatment (col 4, lines 55-60). However they do not teach the components of claims 13-17. These are taught in the by Kanios et al. Kanios et al. teach that their composition for topical applications of pharmaceutical agents and bioadhesive carriers can be formulated into an anti-acne composition containing BP and the additional active agent retinoic acid.

Since the anti-acne compositions of Ramirez et al. and Kanios et al. share common components to treat a common goal it would be obvious for one of ordinary skill in the art to add the composition of Ramirez et al. in view of Self et al. to the invention of Kanios. The motivation and reasonable expectation of success is provided by Kanios et al. who teach an anti-acne composition with similar components to Ramirez et al.

Therefore the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Applicant's Arguments

Applicants rely on the arguments used in traversing the above rejection of Ramirez et al. and Self et al. to also traverse this rejection without additional arguments. However, as explained above, the previous rejection stands. Therefore, the response set forth above to arguments also applies to this rejection.

Claims 13 and 17 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Ramirez et al., Self et al. and Kanios et al. as applied to claims 1-10 and 14-16, 56 and 57 above, and further in view of Bartnick et al. (U.S. Patent # 5,399,353, 1995).

Claims 1-10 as well as 14-16 are summarized above. Claim 13 further limits the composition of claim 1 by requiring the surface stabilizer is lysozyme, polyvinylpyrrolidone (**PVP**), or benzalkonium chloride (**BKC**). Claim 17 limits the antibiotic to clindamycin or erythromycin.

Claims 1-10 are rendered obvious by Ramirez et al. in view of Self et al. Claims 1-10 and 14-16 are rendered obvious by the combination of Ramirez et al., Self et al. and Kanios et al. While Kanios et al. does teach the addition of antibiotics clindamycin and erythromycin as well as lysozyme and PVP to their composition the motivation to add these components to a skin cleansing composition is provided by Bartnick et al.

Bartnick et al. teach a composition to disinfect undamaged skin (col 7, lines 15-20). In this composition they include strong disinfectants such as BP, lactic acid as well as PVP and lysozyme (col 7 line 65 to col 8 line 2). Ramirez et al. already adds the disinfectants lactic acid and BP to their composition (col 4, lines 35-45) and M.P.E.P. § 2144.06 states

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"It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art."

Therefore it is *prima facie* obvious to one of ordinary skill in the art to add more disinfectants to the composition of Ramirez et al., Self et al. and Kanios et al. as motivated by Bartnick et al.

Bartnick et al. also teach the addition of antibiotics to a composition to clean skin (col 7, line 62). Bartnick et al. is silent on which antibiotic. However Kanios et al. teach that the antibiotics clindamycin and erythromycin can be added to their skin composition (col 16, lines 63-65). One of ordinary skill in the art would recognize that antibiotics would be useful in treating skin diseases cause by bacterial infections such as acne. It would therefore have been obvious for the person of ordinary skill in the art to add the antibiotics of Kanios to the combined composition of Ramirez et al., Self et al. and Kanios et al. The motivation is provided by Bartnick et al. who teach the additional components of a skin cleansing composition and the reasonable expectation of success is provided by the formulations of Kanios et al.

Therefore the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Applicant's Arguments

Applicants rely on the arguments used in traversing the above rejection of Ramirez et al. and Self et al. to also traverse this rejection without additional arguments. However, as explained above, the previous rejection stands. Therefore, the response set forth above to arguments also applies to this rejection.

In response to this office action the applicant should specifically point out the support for any amendments made to the disclosure, including the claims (MPEP 714.02 and 2163.06). Due to the procedure outlined in MPEP § 2163.06 for interpreting claims, it is noted that other art may be applicable under 35 U.S.C. § 102 or 35 U.S.C. § 103(a) once the aforementioned issue(s) is/are addressed.

Applicant is requested to provide a list of all copending U.S. applications that set forth similar subject matter to the present claims.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thane Underdahl whose telephone number is (571) 272-9042. The examiner can normally be reached Monday through Thursday, 8:00 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached at (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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